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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT
SCHEME
(NICNAS)

FULL PUBLIC REPORT

Polymer in Aclube 133

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Chemicals Notification and Assessment

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Polymer in Aclube 133P

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)

Plastral Fidene Pty Ltd (ABN 68 000 144 132) 11B Lachlan St WATERLOO NSW 2017.

NOTIFICATION CATEGORY

The notified polymer meets the PLC criteria.

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication: data items relevant to the chemical identity and molecular weight.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

No.

NOTIFICATION IN OTHER COUNTRIES

USA (1993).

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Aclube 133 contains the notified polymer (Aclube 133P) at a concentration of up to 45% weight in highly refined mineral oil.

MOLECULAR WEIGHT

Number Average Molecular Weight (Mn) > 10000

Weight Average Molecular Weight (Mw) >10000

% of Low MW Species < 1000 0.27

% of Low MW Species < 500 0.16

SPECTRAL DATA

Infrared (IR) and nuclear magnetic resonance (NMR) spectra were provided.

METHODS OF DETECTION AND DETERMINATION

ANALYTICAL

METHOD

IR and NMR spectroscopy.

3. COMPOSITION

DEGREE OF PURITY

> 99%

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HAZARDOUS IMPURITIES

None.

NON HAZARDOUS IMPURITIES (> 1% by weight)

None.

ADDITIVES/ADJUVANTS

None.

RESIDUAL MONOMERS

All residual monomers are below the relevant cut-offs for classification of the notified polymer as a hazardous substance.

DEGRADATION PRODUCTS

The notified polymer is stated to be stable under the high temperatures in automotive engines and other equipment requiring oil based lubricants.

4. INTRODUCTION AND USE INFORMATION

MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Aclube 133 will be imported in 180 kg iron drums.

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Year 1 2 3 4 5

Tonnes 30 30 30 30 30

USE

Lubricant additive (pour point depressant).

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, Transport and Storage

PORT OF ENTRY

Not provided.

IDENTITY OF MANUFACTURER/RECIPIENTS

Not known.

TRANSPORTATION AND PACKAGING

The notified polymer will be imported in 180 kg iron drums, and the reformulated products will be packaged into 1000 L Intermediate Bulk Liquid containers, 200 L iron drums, 20 L iron pail, 5 L HDPE bottles and 1 L HDPE bottles.

5.2. Operation Description

The notified polymer will be imported as a component of the product, Aclube 133, comprising up to 45% of the product. It will be reformulated into lubricating oils. The final concentration of the notified polymer in the lubricants is less than 1%. The final products are used mainly as engine oils but to a lesser extent the notified polymer is used in hydraulic fluids and gear oils.

Operators pump the prewarmed polymer solution from the drums in which it is imported to a blend tank. Typically, base oils are pumped to the tank and, after slow mixing, the final lubricants are transferred to either holding tanks or directly to containers for transport to customers. Packaging into smaller containers will be automatic.

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5.3. Occupational exposure

Number and Category of Workers

Category of Worker Number Exposure Duration Exposure Frequency

Operators, QC samplers, maintenance

workers

30 up to 2 hours/day up to 70 days/year

End users of lubricants up to 8 hours/day up to 230 days/year

Exposure Details

Exposure to workers during transport and storage operations is unlikely and is only possible through accidental rupture of containers.

During reformulation incidental loss may occur during drumming off and the connection/disconnection of transfer hoses, which may result in exposure to skin or eyes. Operators typically wear long sleeved clothing, goggles and gloves.

Exposure to engine oils and/or hydraulic fluids or gear oils can be high during addition or replacement but exposure to the notified polymer will be low given its low concentration (< 1%) in the oils or fluids). Workers will typically wear overalls but will not necessarily wear gloves or eye protection.

5.4. Release

RELEASE OF CHEMICAL AT SITE

At the customer's blending facility losses during the blending process are not expected. It is anticipated that the equipment used will be cleaned with oil and these washings will be used in the formulation of the next batch or another oil blend. In these situations release would only be through accidental spills. It is expected that less than 1% of the annual import volume or up to 300 kg per annum will be released during blending and repackaging. The notifier indicates that up to 400 kg of the notified polymer per annum remains in the empty import containers and will be incinerated as drums washings during drum recycling or disposed of with consumer containers in landfill.

RELEASE OF CHEMICAL FROM USE

Engine oils represent the largest end use of the lubricants containing the polymer. The notifier indicates that the release of lubricant to the environment during addition to equipment is expected to be low. Hence, given the low concentration of the polymer in the lubricants (< 1%) releases to the environment of the polymer are expected to be minimal even in the event of improper disposal (eg by do it yourself motorists).

5.5. Disposal

Material spilled during repackaging is either recycled or collected for incineration, while residues from

the cleaning and drum recycling process are consigned to sewer under licence. Empty container residues of the lubricants are expected to be discarded with either industrial or domestic garbage and disposed of into landfill. Used lubricant remaining after oil changes may be recycled or disposed of inappropriately (buried, tipped into landfill, used for weed control, tipped into stormwater, stored). The MSDS recommends disposal in accordance with government regulations.

5.6. Public exposure

Automobile engine oils containing the notified polymer may be used to replace spent crankcase oil. Where the oil is changed by members of the public the potential for dermal exposure to the oil is high. However, the potential for exposure to the notified polymer is low given its low concentration (< 1%) in the oil and the fact that engine oil is changed infrequently.

6. PHYSICAL AND CHEMICAL PROPERTIES

Some properties are for Aclube 133 as described on the MSDS for this formulation.

Appearance at 20°C and 101.3 kPa Straw-coloured viscous liquid (polymer in mineral oil imported as Aclube 133).

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Melting Point/Freezing Point -13°C

Boiling Point > 200°C (Aclube 133)

Density 940 kg/m³ at 15°C (900 kg/m³ for Aclube 133).

Water Solubility < 1 mg/L at 20°C

Remarks Conducted according to the flask method of OECD Guideline for the testing of chemicals 105 water solubility. The amount dissolved into the water phase was determined by the difference in weight of the sample before and after exposure to water.